



New Apollo Energy Act

Crescent Earth photographed from Apollo 11 during return trip.

Photo courtesy of the National Aeronautics and Space Administration, NASA History Office and the NASA JSC Media Services Center.

Available at: <http://www.hq.nasa.gov/office/pao/History/ap11ann/galleries.htm>



Introduction

In 1961 President John F. Kennedy challenged the nation to reach the moon within ten years.

The New Apollo Energy Act seeks to tap the same fountain of innovative talent that put us on the moon to create a new energy future for our nation.

By marshalling our technological resources and tapping the ingenuity of the American people, the United States can achieve the following objectives:

1. Create millions of new highly-trained, well-paid domestic jobs;
2. Enhance national security by weaning us of our dependence on Middle East oil; and
3. Address the threat of global warming.

The New Apollo Energy Act provides a fiscally responsible set of tools to inspire creative innovation, vaulting America into a new era of security, prosperity and clean technology. Simply drilling beneath our feet can not solve our energy challenges. We must use the resource above our shoulders, the inherent creative intellectual capabilities of the American people, which surely have the ability to reach well beyond our current energy technologies, just like we did to reach the moon.

This is a different challenge than in the 1960's, but we are the same people as we were then – the most innovative on earth. Americans deserve the New Apollo Energy Act to help realize their brightest future.

A handwritten signature in black ink, which appears to read "Jay Inslee". The signature is stylized with a large, sweeping "J" and "I".

U.S. Representative Jay Inslee, WA-01

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Objective #1: Creating American Jobs



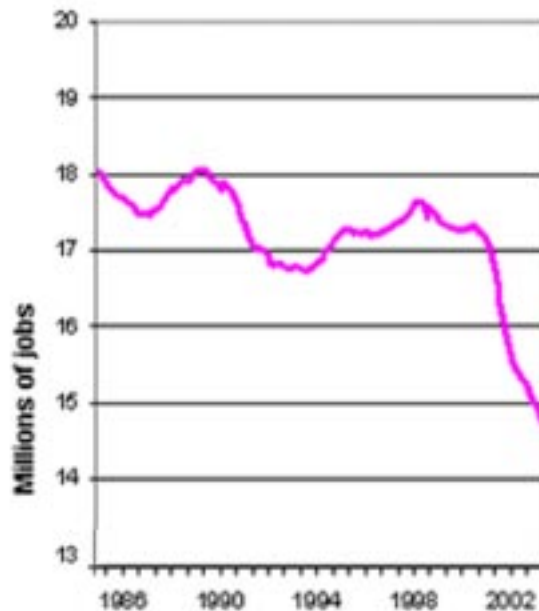
Revitalizing the United States Manufacturing Base

Studies have shown that investing in clean energy technologies could generate millions of highly skilled American jobs. A University of Michigan study suggests that a federal effort to help retool domestic automobile plants to make hybrids and other fuel efficient vehicles could save hundreds of thousands of jobs. The Apollo Alliance has found that substantial investments in clean energy could yield up to 3.3 million jobs.

The Apollo Act revitalizes the U.S. manufacturing base by:

- Distributing billions of dollars in tax credits for construction of facilities to build and distribute advanced clean technologies.
- Establishing tax credits for the retooling or new construction of plants to build hybrid, alternative fuel, advanced diesel, and fuel cell vehicles.
- Offering grants to municipalities to improve energy efficiency in water and sewer systems
- Providing grants to improve mass transit programs.
- Offering loan guarantees for the construction of plants that produce cellulosic biomass ethanol, biomethanol, and electricity from wind, solar, ocean, geothermal, and biomass

U.S. Manufacturing Employment



Graph Source: Adopted from "Economic Snapshot" by Robert Scott and Adam Hersh, Economic Policy Institute, available at: www.epinet.org.

Quotable

"Given Japan's substantial technological and production lead in hybrids and Europe's lead in smaller displacement diesels... the United States stands to lose 38,000 to 207,000 jobs... To promote the U.S. production of hybrids and passenger diesels, we propose the development of a policy that would provide all automakers and suppliers—foreign and domestic—with a tooling and equipment investment tax credit to be used to convert existing U.S. facilities toward the production of hybrid and advanced diesel vehicles and components."

—Patrick Hammett, Michael Flynn, and Maitreya Kathleen Sims, University of Michigan Transportation Research Institute

Did You Know?

An economy-wide investment of \$300 billion in clean technologies could yield over 1.4 trillion dollars in GDP and 3.3 million jobs.

Source: The Perryman Group, *Redefining the Prospects for Sustainable Prosperity, Employment Expansion, and Environmental Quality in the US: An Assessment of the Economic Impact of the Initiatives Comprising the Apollo Project*, November 2003.

Quotable

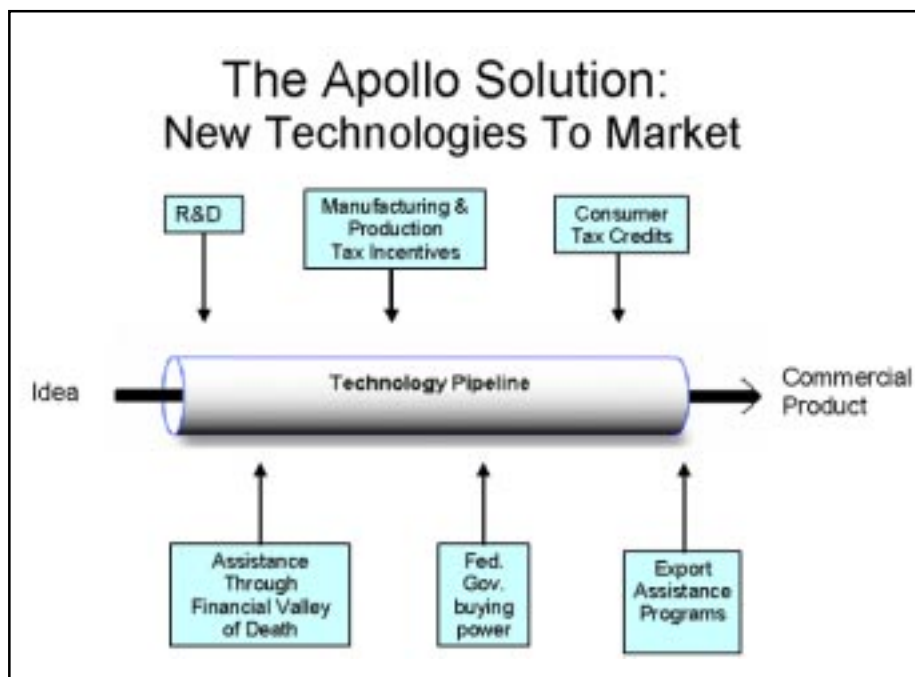
"We were the undisputed leader during the 1970s, and we virtually walked away from those investments [when federal support lagged]. Now, we are in last place relative to these technologies."

— Steve Strong, President of Solar Design Associates

Fostering American Ingenuity and Innovation

The United States is falling behind such countries as Denmark, Germany and Japan in the production of clean energy technologies. As a result, these countries are creating thousands of new jobs in the clean energy sector. The United States is missing out on this opportunity to create a new manufacturing base of high-paying, domestic jobs.

The New Apollo Energy Act helps new technologies throughout their life cycle, from idea to commercial product. The government will provide the necessary financial backing to ensure products reach the market.



To close the growing technology gap with foreign competitors, the Apollo Act will:

- Fund billions of dollars in new federal research into advanced clean technologies, fusion power, and extended reach drilling.
- Create a government-funded risk pool for the qualifying clean energy technologies.
- Mandate a federal clean energy use requirement.
- Improve coordination of federal technology transfer and commercialization activities.
- Set up an international energy technology deployment program.
- Establish a clean energy technology export program.
- Add a renewable energy lending requirement for the Export-Import Bank.

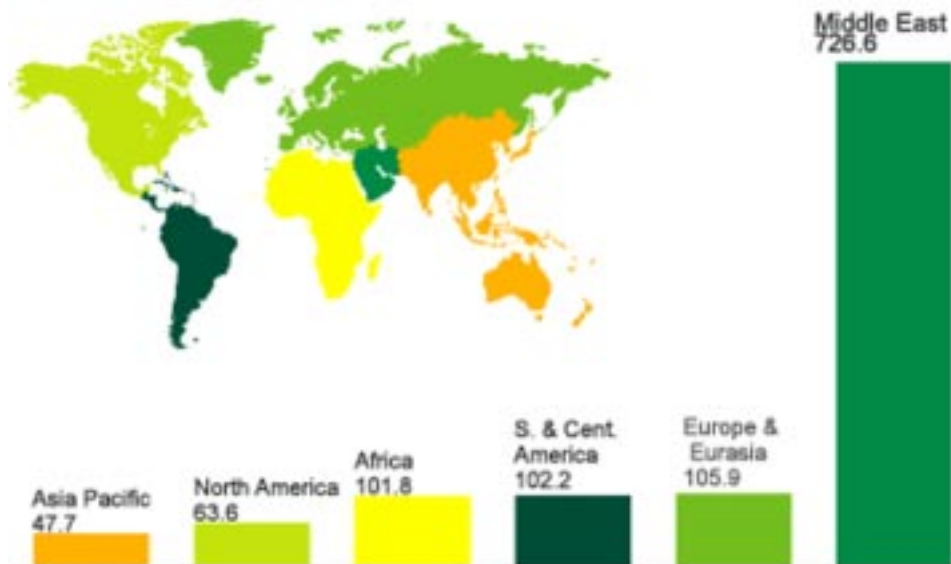
Objective #2: Decreasing Oil Dependence

The United States possesses only 3% of the world's oil reserves, yet consumes 25% of the world's oil. With most of the world's oil supply located in unstable regimes and regions, the United States must diversify its energy resources in order to preserve our national security.

United States oil imports are projected to increase 68% by 2025 with much of the increase coming from the Middle East. United States dependence on foreign sources of oil makes us vulnerable to supply disruptions, unpredictable price spikes, and the whims of dictatorial governments.

BP Statistical Review of World Energy 2004

Proved oil reserves at end 2003
Thousand million barrels



Available at: www.bp.com/genericarticle.do?categoryId=111&contentId=2004175

Did You Know?

The Department of Energy's "Energy Information Agency" says that the Bush administration's Energy Plan will raise oil imports by 85%.

Source: Summary Impacts of Modeled Provisions of the 2003 Conference Energy Bill, February 2004.

Available at: [www.eia.doe.gov/oiaf/servicert/pceb/pdf/sroiaf\(2004\)02.pdf](http://www.eia.doe.gov/oiaf/servicert/pceb/pdf/sroiaf(2004)02.pdf)

Quotable

"The wealth produced by oil underlies the power of the three totalitarian movements in the Middle East that have chosen to make war on us: the ruling Iraqi Baathists and Iranian mullahs, and al Qaeda, which was spawned by Saudi money... We are at war. We should start by asking what we can do, as soon as possible, to undercut our enemies' power.... If we do not act now, we will leave major levers over our fate in the hands of regimes that have attacked us or have fallen under the sway of fanatics who spread hatred of the U.S., and indeed of freedom itself... For all of them, their power derives from their oil. It is time to break their sword."

— R. James Woolsey, CIA Director, "Spiking the Oil Weapon," Wall Street Journal, September 18, 2002.

Quotable

"... [I]f we really want to hasten the transition from autocracy to something more democratic in places like Iraq or Iran, the most important thing we can do is gradually, but steadily, bring down the price of oil - through conservation and alternative energies... In the Middle East, conservation and alternative energies are strategic tools."

—Thomas L. Friedman, "Drilling for Freedom," New York Times, October 20, 2002.

In order to wean the United States off foreign sources of oil without subjecting Americans to price increases at the pumps, the Apollo Energy Act establishes:

- An oil savings provision that requires a reduction in daily domestic oil consumption by 600,000 barrels by 2010; 1,700,000 barrels by 2015; and 3,000,000 barrels by 2020. These barrel figures represent the amounts imported from Iraq, Saudi Arabia, and the Persian Gulf respectively.
- \$11.5 billion in tax credits for the automotive and aerospace industries to develop new fuel efficient autos and planes; retool existing plants; and construct new plants to manufacture alternative fuel and fuel efficient vehicles.
- Tax credits for the purchase of hybrid, alternative fuel, low-emission advanced diesel, and fuel cell vehicles.
- A renewable fuels standard set at 8 billion gallons by 2013.
- Loan guarantees and investment tax credits for the construction of cellulosic biomass ethanol and biomethanol facilities.
- Tax credits for the installation of alternative refueling properties.
- Tax credits for the retail sale of alternative fuels.

Weekly U.S. Retail Gasoline Prices, Regular Grade



Source: Energy Information Administration

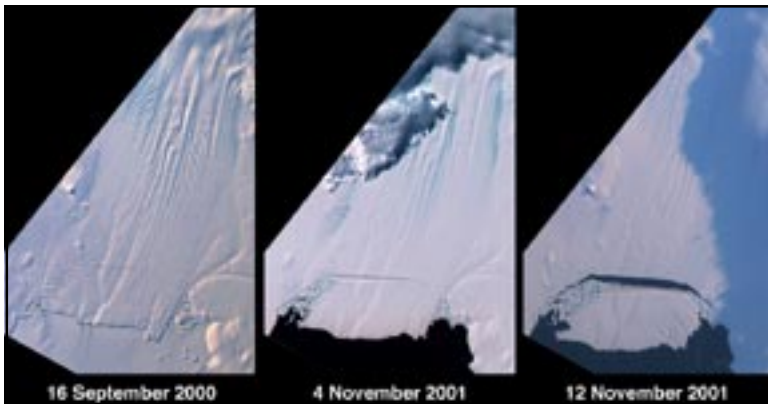
Objective #3: Addressing Global Warming

The scientific evidence shows that global warming exists and the problem is only getting worse. Global warming models predict global temperatures will rise, species will struggle to adapt to their rapidly changing environments, and glaciers in our national parks will melt.

The story is not all doom and gloom. Decisive action can mitigate the worst of the possible impacts from global warming. Apollo is designed to combat global warming by enacting the McCain-Lieberman Climate Stewardship Act, which limits our emission of global warming gases, coupled with tax incentives and research and development to make implementation affordable.

The Apollo Energy Act:

- Implements a tradable greenhouse gas permit scheme that closely resembles McCain-Lieberman's Climate Stewardship Act. In 2010 the bill would cap carbon dioxide emissions at 2000 levels. This would also include an auction for 5-10% of the permits for new entrants.
- Initiates a federal support system for the commercialization carbon sequestration, coal gasification, and minimal emission coal technologies.
- Contains a Renewable Portfolio Standard requiring 10% renewable electricity production by 2021. There is a cost cap set at 3 cents per kilowatt hour. Monies from the cost cap are used to fund grants for the construction of renewable electricity generation facilities in states lacking renewable resources.
- Provides loan guarantees, R&D credits, and investment tax credits for the construction of renewable electricity generation facilities.
- Extends the renewable electricity production tax credit for ten years. The Apollo Energy Act also expands the credit to include ocean power (wave, current, tidal and thermal).



This image sequence shows the break-off of a large iceberg from the Pine Island Glacier in West Antarctica, sometime between November 4 and November 12, 2001. Available at: http://www.jpl.nasa.gov/images/earth/antarctica/misr_pineisland_caption.html. Courtesy NASA/JPL-Caltech.

Quotable

"When you have energy companies like Shell and British Petroleum... saying there is a problem with excess carbon dioxide emission, I think we ought to listen."

— James Baker, former Secretary of State

Quotable

"... [T]here is observational evidence that sea level is rising, non-polar glaciers are retreating world-wide, Arctic sea ice is thinning in summer, a greater fraction of precipitation is falling in heavy precipitation events, the incidence of extreme weather events is increasing in some parts of the world, and the magnitude, frequency and persistence of the El-Nino phenomena, which leads to regions of the tropics and sub-tropics with severe droughts and floods, have increased since the mid-1970s."

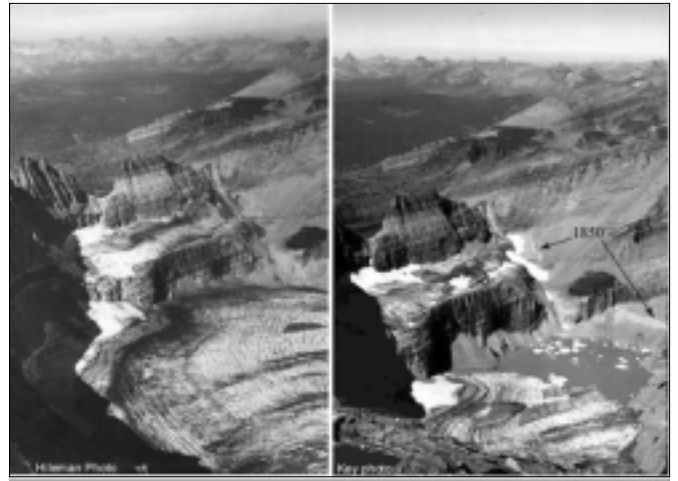
— Robert T. Watson, Chair, Intergovernmental Panel on Climate Change, Keynote Speech July 19, 2001. Available at: www.ipcc.ch/present/COP65/COP-6-bis.htm

Quotable

"...[A]s the threat of global climate change is becoming widely acknowledged in the U.S. there is a growing understanding that a responsible national energy policy includes a global climate change mitigation strategy that can be environmentally effective and economically advantageous."

— Professor Daniel Kammen, Director Renewable and Appropriate Energy Lab, Dr. Antonia V. Herzog, and Dr. Timothy E. Lipman

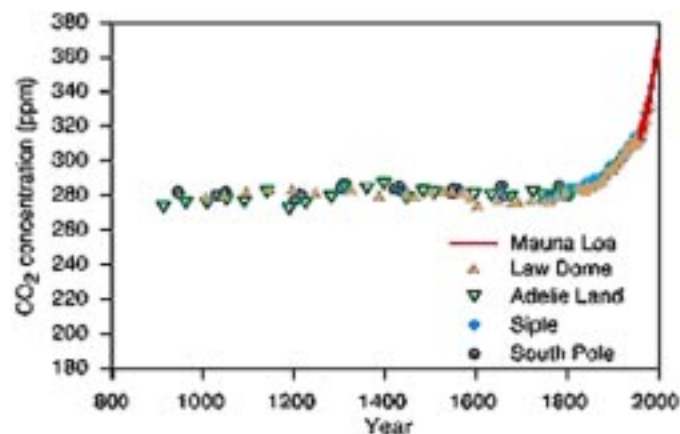
- Orders the Secretary of Energy to create a tax credit for the erection of new electricity transmission lines to get power from remote clean resources such as wind in the East and Midwest, geothermal in the West, and biomass in the South.
- Creates tax credits for residential use of real-time monitoring systems.
- Gives tax credits for distributed energy generation and demand management property.
- Establishes a tax credit for construction of green residences and business.



Grinnell Glacier in Glacier National Park, Montana, as viewed from the top of Mount Gould during late summer 1938 (left) and 1981 (right). In just 43 years, dramatic climatic response is evident . . . By 1993, the glacier had shrunk about 63% in area.

Available at: www.nrmssc.usgs.gov/research/glacier_retreat.htm

Global Atmospheric Concentrations of Carbon Dioxide



Source: "Summary for Policymakers: A Report of Working Group I of the Intergovernmental Panel on Climate Change," Intergovernmental Panel on Climate Change (IPCC, 2001).

Apollo Energy Act on Energy Efficiency



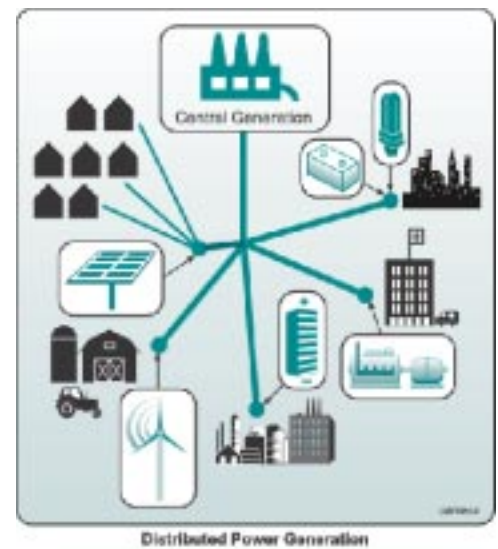
The best way to create new energy is to not waste it. Distributed energy and gains in energy efficiency are often the most inexpensive ways to meet new electricity demands. Green businesses and residences can produce much of their own energy. The combination of these endeavors would reduce pollution and energy consumption, and provide enough off-grid energy generation capacity to substantially reduce the risk of blackouts.

The Apollo Energy Act will move America toward energy efficiency and distributed energy by enacting:

- Implements energy efficiency standards for certain appliances.
- Creates national net metering and interconnection standards.
- Establishes a national energy efficient home mortgage association.
- \$36 billion in new federal research into advanced efficiency technologies, including a next generation lighting initiative, green residences and buildings, and distributed energy
- Tax credits for distributed energy generation and demand management property in residences and businesses.
- Grants to municipalities and tribes for the development of distributed energy implementation plans.
- Grants for sewer and water energy improvements.
- Grants to improve mass transit programs.
- Increases funding for LIHEAP and weatherization projects.
- Tax credits for residential use of real-time monitoring systems.
- A permanent extension of the Energy Savings Performance Contracts program.
- A requirement that the federal government reduce its energy consumption 35% by 2015.
- A government funded risk pool to assist energy efficient products in coming to commercial fruition.



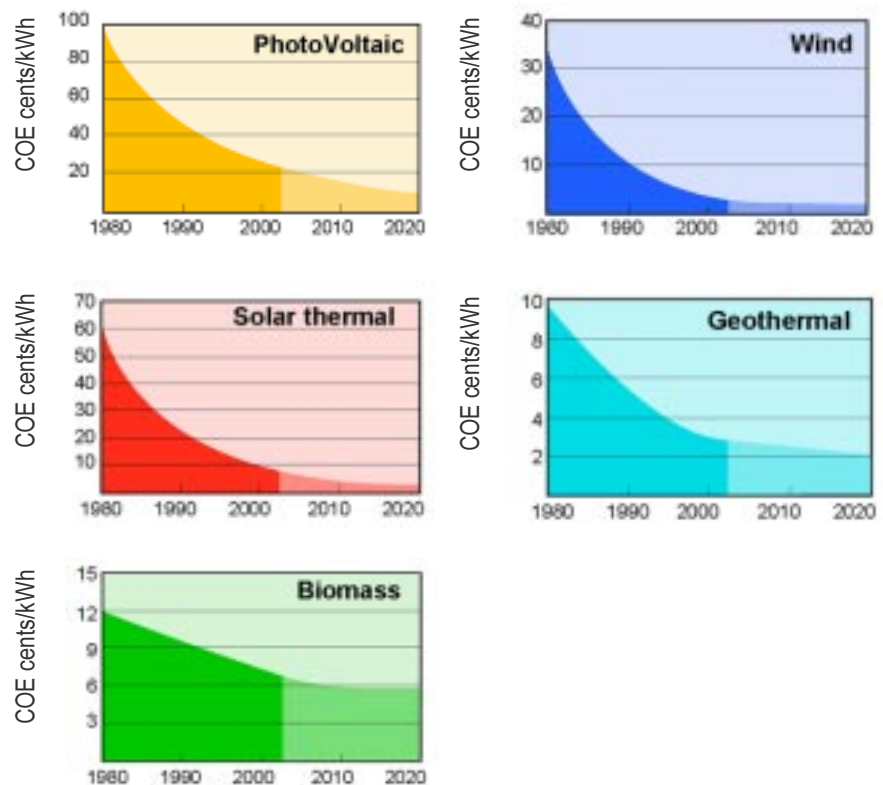
Seattle, WA.



Apollo Energy Act on Renewable Energy

It has become common knowledge that renewable energy must be an integral part of our nation's efforts to increase national security and address global warming. Despite this knowledge, renewable energy struggles to compete against the firmly established and heavily subsidized oil and gas industries. As the charts below indicate, the cost of renewables have gone down at a steady rate, but further federal investment is needed before solar, wind, biomass, and geothermal can compete effectively. It is simple matter of economics: with increased demand comes increased production volume and decreasing prices.

Renewable Energy Costs are Decreasing Significantly



Source: NREL Energy Analysis Office (www.nrel.gov/analysis/docs/cost_curves_2002.ppt). These graphs are reflections of historical cost trends, not precise annual historical data.

To foster the renewable energy, the Apollo Energy Act passes:

- A renewable portfolio standard set at 10% by 2021. There is a cost cap set at 3 cents per kilowatt hour. Monies from the cost cap are used to fund grants for the construction of renewable electricity generation facilities in states lacking renewable resources.
- National net-metering and interconnection standards.
- An expansion of the electricity production credit to include incremental geothermal and ocean (wave, thermal, tidal, current).
- A ten year extension of the electricity production credit from renewable resources.
- Tax credits for the installation of distributed energy technologies like energy efficient heat pumps, solar panels, solar water heaters, waste conversion properties using biomass, and small wind turbines.
- Tax credits for corporate research and development into new geothermal, ocean, wind, solar, and biomass technologies.
- Tax credits for companies to retool or build new plants to construct geothermal, ocean, wind, solar, and biomass technologies.
- Lower tax rates on bank income derived from interest on loans for renewable projects.
- Loan guarantees for the construction of new geothermal, wind, biomass, ocean, and solar electricity generation facilities.
- Federal research and development monies to promote next generation renewable projects and make those technologies more affordable.
- Federal support for the commercialization of new renewable technologies through grants, loan guarantees, loans, and a risk pool.
- A federal renewable energy consumption requirement set at 20%.
- A clean energy technology export program.
- Requirements for the Export-Import Bank that 15% of its activities focus on renewable and energy efficiency technologies.
- Creation of a mechanism whereby public utilities can trade renewable resource credits, thereby encouraging public utilities to construct renewable resource projects.
- Requires the Secretary of Interior to standardize right-of-way requirements for wind projects.
- Tax credits for the installation of clean coal technologies on plants that co-fire with biomass.
- Requires the Energy Star program to issue specifications for certified solar water heaters.



Stateline Wind Energy Center near Walla Walla, WA.
Photo courtesy of Florida Power and Light Energy.

Quotable

"The combined annual compound growth rate for wind and solar renewables is about 30 percent. That means this market is growing faster than computers and cell phones in their early days."

— Steve Strong, President of Solar Design Associates

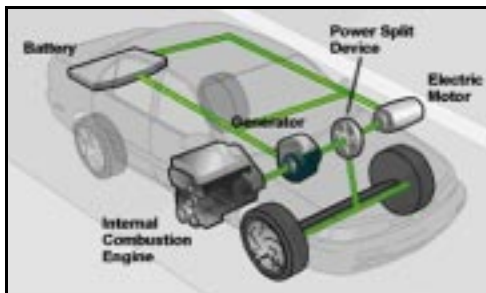
"Petroleum emerged first in niche markets, then grew rapidly. Wind and solar power are doing the same, growing at double-digit annual rates globally, but mostly in Europe and Japan-where government support is creating vibrant markets and high-tech jobs and exports."

— The Worldwatch Institute

Did You Know?

One-third of United States carbon dioxide emissions come from the transportation sector (including airplanes and boats).

Source: National Commission on Energy Policy, *Ending the Energy Stalemate: A Bipartisan Strategy to Meet America's Energy Challenges*, December 2004, available at: www.energycommission.org



Hybrid-electric vehicles (HEVs) combine the benefits of gasoline engines and electric motors and can be configured to obtain different objectives, such as improved fuel economy, increased power, or additional auxiliary power for electronic devices and power tools.

Available at: www.fueleconomy.gov/feg/hybridtech.shtml

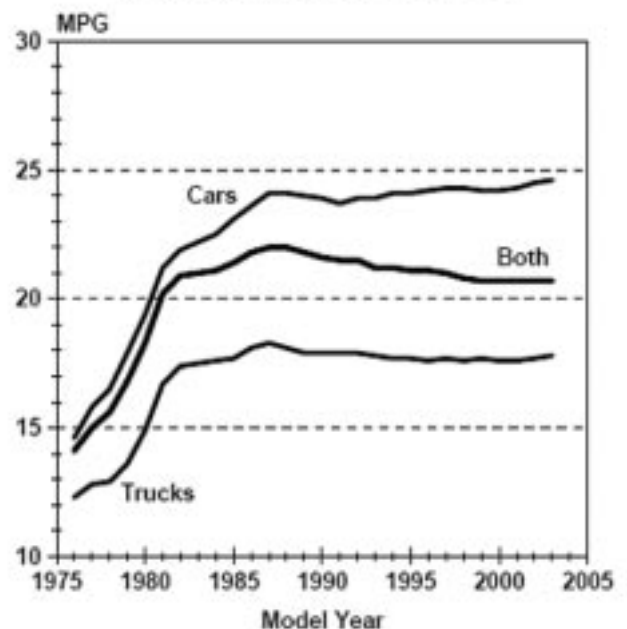
Apollo Energy Act on Automobiles

The future in automobiles is fuel efficiency and alternatively fueled vehicles. The Apollo Energy Act puts the United States in to the driver's seat to lead the world in manufacturing hybrid, electric, alternative fuel, advanced diesels, and fuel cell vehicles through innovative use of the tax code. The legislation also ensures that targets designed to reduce oil dependence are met.

The Apollo Act seeks to spur fuel-efficient vehicle production and consumption by enacting:

- \$10 billion in tax credits for the development of new automotive technologies and the retooling or new construction of automotive plants to install or construct these new technologies.
- Tax credits for purchasing alternative fuel, electric, hybrid, advanced diesels that meet emission regulations, and fuel cell vehicles.
- An oil savings provision that requires a reduction in daily domestic oil consumption by 600,000 barrels by 2010; 1,700,000 barrels by 2015; and 3,000,000 barrels by 2020.
- A renewable fuels standard set at 8 billion gallons by 2013.
- Tax credits for the installation of alternative fuel refueling properties.
- Tax credits for the retail sale of alternative fuels.
- Loans for municipalities to purchase high efficiency vehicles.
- A requirement that 10% of the federal fleet of vehicles be fuel-efficient or hybrid vehicles.
- Billions in federal research and development monies to development new fuel efficient vehicles.

**Adjusted Fuel Economy by Model Year
(Three-Year Moving Average)**



Source: Environmental Protection Agency,
Available at: www.epa.gov/otaq/cert/mpg/fetrends/420s04002.pdf

Apollo Energy Act on Alternative Fuels

The United States can reduce its dependence on oil by coupling automobile fuel efficiencies with alternative fuels. Many potential fuels are beginning to penetrate the market, including ethanol, methanol and biodiesel, and with a few federal incentives, these alternative fuels can put a big dent in America's petroleum imports.



A Factsheet for Farmers, Biofuels and Agriculture, U.S. Department of Energy.
Available at: www.eere.energy.gov/biomass/pdfs/farmerfactsheet.pdf

Quotable

"A bold yet balanced energy policy based on existing technologies can reduce the role of oil in our energy basket by commercializing next generation fuels and vehicles."

— Dr. Gal Luft, of the Institute for the Analysis of Global Security

The Apollo Act provides the needed impetus by enacting:

- A renewable fuels standard set at 8 billion gallons by 2013.
- Loan guarantees and investment tax credits for the construction of cellulosic biomass ethanol and biomethanol facilities.
- A ten year extension of the excise and consumption tax credits for biodiesel.
- Tax credits for purchasing alternative fuel vehicles.
- Tax credits for the installation of alternative refueling properties.
- Tax credits for the retail sale of alternative fuels.
- Tax credits for the installation of minimum emission coal technologies on plants that co-produce methanol and energy.
- A federal risk pool to help move clean technologies to market, including alternative fuel technologies.
- A 10% ethanol and biodiesel federal agency purchase requirement.
- Federal research and development monies to development new cellulosic ethanol and biomethanol technologies.
- Federal research and development monies to development new cellulosic methanol technologies and new coal-related techniques that also produce methanol.



EPA, DaimlerChrysler, and UPS are collaborating to put zero-emission package delivery vehicles powered by hydrogen fuel cells into commercial service in Michigan.

Available at: www.epa.gov/fuelcell

Quotable

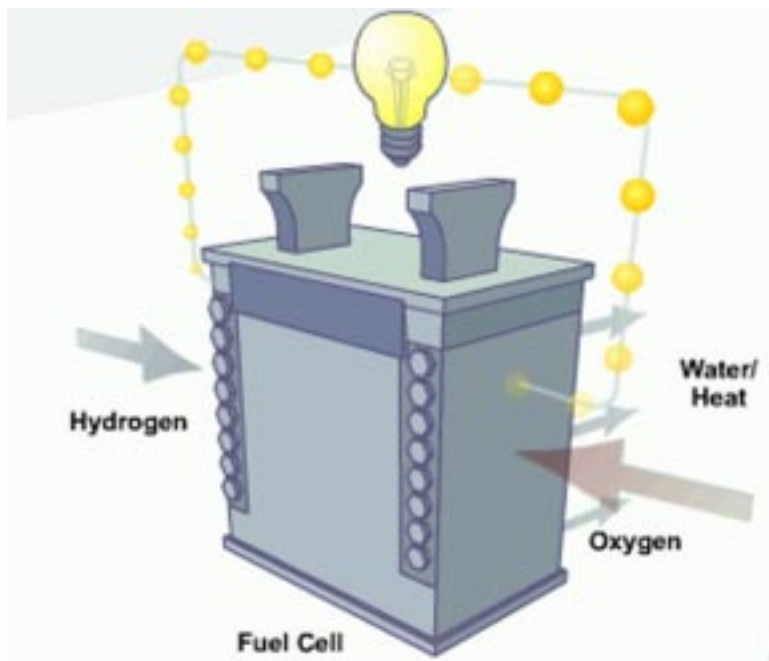
"Fuel cells, with their roots in the space program, have the potential to truly revolutionize power generation."

— "Fuel Cells: Realizing the Potential," Dr. Mark C. Williams, U.S. Department of Energy's National Energy Technology Laboratory, and Dan Rastler, Electric Power Research Institute.

Apollo Energy Act on Fuel Cells and Hydrogen

Fuel cells, particularly those powered by hydrogen produced from renewable sources, are an encouraging technology that may offer a long term solution to our domestic energy challenges. Since the commercial application of fuel cells to vehicles may be ten to twenty years away, it is imperative that we begin investing in the technology today. The Apollo Energy Act endeavors to do just that by enacting:

- Tax credits for purchasing fuel cell vehicles.
- Tax credits for the installation of hydrogen refueling properties.
- Tax credits for the retail sale of hydrogen for use as a vehicular fuel.
- Tax credits for the development of new automotive fuel cell technologies and the re-tooling or new construction of automotive plants to install new fuel cell technologies or construct fuel cell compatible vehicles.
- Tax credits for the installation in businesses and homes of distributed energy fuel cell properties.
- Tax credits for the residential installation of fuel cells designed to meet electricity needs.
- Lower tax rates on bank income derived from interest on loans for fuel cell projects.
- Federal research and development monies to promote next generation fuel cell projects and to make fuel cell technologies more affordable.
- Federal support for the commercialization of new fuel cell technologies through grants, loan guarantees, loans, and a risk pool.
- A federal program to deploy fuel cell technologies internationally.
- A clean energy technology export program that promotes fuel cell technologies.
- National net-metering and interconnection standards.

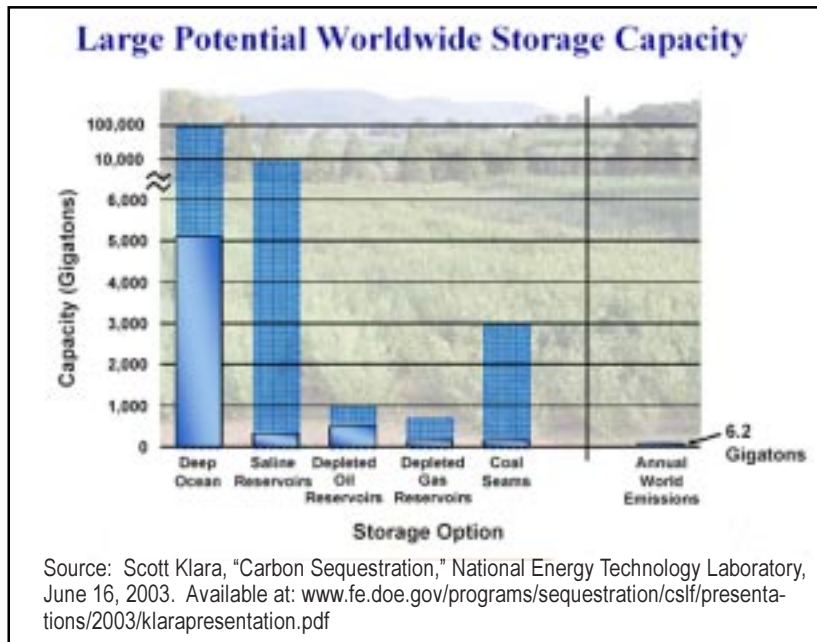


Apollo Energy Act on Coal

As the largest single source of domestic energy, it is important that we find solutions to the environmental challenges that coal presents. The Apollo Energy Act promotes research into new technologies like gasification, carbon sequestration, and minimum emission coal equipment, which may find a way to use coal without causing global warming. While there are no guarantees associated with this research, the ubiquity of coal and the necessity of reducing coal emissions makes these investments reasonable.

To reduce coal's environmental footprint, the Apollo Energy Act:

- Loan guarantees for the construction of coal plants that sequester at least 90% of their carbon dioxide emissions.
- Establishes four separate tax credits for the installation of minimum emission coal technologies. The credits increase as more carbon dioxide is sequestered and as the technology gets more efficient. There are no exemptions from environmental rules.
- A 10 year extension of the production credit for electricity produced from refined coal.
- Federal research and development monies to develop minimum emission coal technologies. This money focuses heavily on sequestration and gasification technologies.
- Research and development tax credits for the creation of new technologies to co-fire coal with biomass.
- An investment tax credit for the re-tooling or construction of a plant that utilizes technologies that co-fire coal with biomass.
- A limitation on inter-sector trading under the carbon dioxide cap that prevents the energy sector from trading with other sectors. This will prevent unnecessary closures of coal-fired power plants.



Quotable

"...[C]arbon capture and storage technologies could be fundamental to controlling the costs of addressing climate change—not only in sectors such as electric power production from fossil fuels, but it may also be key to facilitating the emergence of an affordable global hydrogen economy which is one potential promising pathway for decarbonizing the transportation sector."

— JJ Dooley, JA Edmonds, RT Dahowski, MA Wise, Joint Global Change Research Institute, Battelle, Pacific Northwest National Laboratory

Apollo Energy Act on Miscellaneous Issues

Grid Reliability and Consumer Protection

Along with efforts to improve energy efficiency and transform the United States into a clean economy, the Apollo Act also seeks to improve grid reliability and protect consumers by:

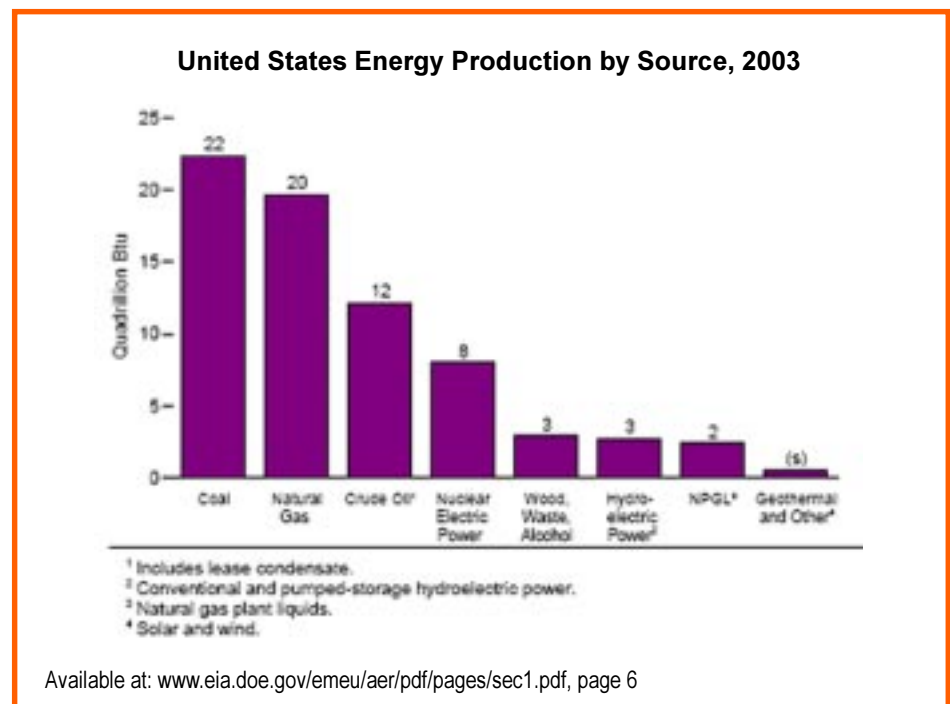
- Increasing regulatory oversight of energy trading markets.
- Establishing electric grid reliability standards.
- Requiring the President to fill the Strategic Petroleum Reserve.
- Increasing funding for LIHEAP and weatherization projects.
- Establishing a national energy efficient home mortgage association.
- Creating national net metering and interconnection standards.
- Implementing energy efficiency standards for certain appliances.

Oil and Gas

- A clean energy technology export program that seeks to expand markets for cleaner fossil fuel technologies.
- Federal research and development funding for extended reach and ultra-deep water drilling.

Nuclear

- A clean energy technology export program that seeks to expand markets for safer nuclear technologies.
- Federal research and development funding for the international fusion program [ITER].



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